
**Energy performance of buildings —
Thermal, solar and daylight properties
of building components and
elements —**

**Part 1:
Simplified calculation method of the
solar and daylight characteristics for
solar protection devices combined
with glazing**

*Performance énergétique des bâtiments — Propriétés thermiques,
solaires et lumineuses des composants et éléments du bâtiment —*

*Partie 1: Méthode de calcul simplifiée des caractéristiques solaires et
lumineuses pour les dispositifs de protection solaire combinés à des
vitrages*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

ISO 52022-1 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 89, *Thermal performance of buildings and building components*, in collaboration with ISO Technical Committee ISO/TC 163, *Thermal performance and energy use in the built environment*, Subcommittee SC 2, *Calculation methods*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

A list of all parts in the ISO 52022 series can be found on the ISO website.

Introduction

This document is part of a series aimed at the international harmonization of the methodology for assessing the energy performance of buildings. Throughout, this series is referred to as a “set of EPB standards”.

All EPB standards follow specific rules to ensure overall consistency, unambiguity and transparency.

All EPB standards provide a certain flexibility with regard to the methods, the required input data and references to other EPB standards, by the introduction of a normative template in [Annex A](#) and [Annex B](#) with informative default choices.

For the correct use of this document, a normative template is given in [Annex A](#) to specify these choices. Informative default choices are provided in [Annex B](#).

The main target groups for this document are architects, engineers and regulators:

Use by or for regulators: In case this document is used in the context of national or regional legal requirements, mandatory choices may be given at national or regional level for such specific applications. These choices (either the informative default choices from [Annex B](#) or choices adapted to national/regional needs, but in any case following the template of this [Annex A](#)) can be made available as national annex or as separate (e.g. legal) document (national data sheet).

NOTE 1 So in this case:

- the regulators will **specify** the choices;
- the individual user will apply the document to assess the energy performance of a building, and thereby **use** the choices made by the regulators

Topics addressed in this document can be subject to public regulation. Public regulation on the same topics can override the default values in [Annex B](#) of this document. Public regulation on the same topics can even, for certain applications, override the use of this document. Legal requirements and choices are in general not published in standards but in legal documents. In order to avoid double publications and difficult updating of double documents, a national annex may refer to the legal texts where national choices have been made by public authorities. Different national annexes or national data sheets are possible, for different applications.

It is expected, if the default values, choices and references to other EPB standards in [Annex B](#) are not followed due to national regulations, policy or traditions, that:

- national or regional authorities prepare data sheets containing the choices and national or regional values, according to the model in [Annex A](#). In this case a national annex (e.g. NA) is recommended, containing a reference to these data sheets;
- or, by default, the national standards body will consider the possibility to add or include a national annex in agreement with the template of [Annex A](#), in accordance to the legal documents that give national or regional values and choices.

Further target groups are parties wanting to motivate their assumptions by classifying the building energy performance for a dedicated building stock.

More information is provided in the Technical Report (ISO/TR 52022-2) accompanying this document.

The framework for overall EPB includes:

- a) common terms, definitions and symbols;
- b) building and assessment boundaries;
- c) building partitioning into space categories;

- d) methodology for calculating the EPB (formulae on energy used, delivered, produced and/or exported at the building site and nearby);
- e) a set of overall formulae and input-output relations, linking the various elements relevant for the assessment of the overall EPB;
- f) general requirements for EPB dealing with partial calculations;
- g) rules for the combination of different spaces into zones;
- h) performance indicators;
- i) methodology for measured energy performance assessment.

Table 1 shows the relative position of this document within the set of EPB standards in the context of the modular structure as set out in ISO 52000-1.

NOTE 2 In ISO/TR 52000-2, the same table can be found, with, for each module, the numbers of the relevant EPB standards and accompanying technical reports that are published or in preparation.

NOTE 3 The modules represent EPB standards, although one EPB standard could cover more than one module and one module could be covered by more than one EPB standard, for instance, a simplified and a detailed method respectively.

Table 1 — Position of this document (*in casu* M2–8) within the modular structure of the set of EPB standards

Sub module	Overarching		Building (as such)		Technical building systems									
	Descriptions		Descriptions		Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic hot water	Lighting	Building automation and control	PV, wind, ..
sub1		M1		M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
1	General		General		General									
2	Common terms and definitions; symbols and subscripts		Building energy needs		Needs								a	
3	Applications		(Free) Indoor conditions without systems		Maximum load and power									
4	Ways to express energy performance		Ways to express energy performance		Ways to express energy performance									
5	Building categories and building boundaries		Heat transfer by transmission		Emission and control									
6	Building occupancy and operating conditions		Heat transfer by infiltration and ventilation		Distribution and control									

^a The shaded modules are not applicable.

Table 1 (continued)

Sub module	Overarching		Building (as such)		Technical building systems									
	Descriptions		Descriptions		Descriptions	Heating	Cooling	Ventilation	Humidification	Dehumidification	Domestic hot water	Lighting	Building automation and control	PV, wind, ..
sub1		M1		M2		M3	M4	M5	M6	M7	M8	M9	M10	M11
7	Aggregation of energy services and energy carriers		Internal heat gains		Storage and control									
8	Building zoning		Solar heat gains	ISO 52022-1	Generation and control									
9	Calculated energy performance		Building dynamics (thermal mass)		Load dispatching and operating conditions									
10	Measured energy performance		Measured energy performance		Measured energy performance									
11	Inspection		Inspection		Inspection									
12	Ways to express indoor comfort				BMS									
13	External environment conditions													
14	Economic calculation													

^a The shaded modules are not applicable.

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Energy performance of buildings — Thermal, solar and daylight properties of building components and elements —

Part 1:

Simplified calculation method of the solar and daylight characteristics for solar protection devices combined with glazing

1 Scope

This document specifies a simplified method based on thermal, solar and light characteristics of the glazing and solar and light characteristics of the solar protection device, to estimate the total solar energy transmittance, direct energy transmittance and the light transmittance of a solar protection device combined to a glazing.

This document is applicable to all types of solar protection devices parallel to the glazing, such as louvre, venetian or roller blinds. The position of the solar protection device can be interior, exterior or between single panes in a dual glazing system. It is applicable when the total solar energy transmittance of the glazing is between 0,15 and 0,85. Venetian or louvre blinds are assumed to be adjusted so that there is no direct solar penetration. It is assumed that for external solar protection devices and for integrated solar protection devices, the space between the solar protection devices and the glazing is unventilated and for internal solar protection devices this space is ventilated.

The resulting g -values of the simplified method given here are approximate and their deviation from the exact values lie within the range between +0,10 and -0,02. The results generally tend to lie on the safe side for cooling load estimations. The results are not intended to be used for calculating beneficial solar gains or thermal comfort criteria.

The simplified method is based on the normal incidence of radiation and does not take into account either the angular dependence of transmittance and the reflectance or the differences of spectral distribution. This should be considered when applying the method.

The simplified method can also be used for inclined elements.

This document can be applied when the solar transmittance and solar reflectance of the solar protection devices are within the following ranges:

$$0 \leq \tau_{e,B} \leq 0,5 \text{ and } 0,1 \leq \rho_{e,B} \leq 0,8$$

For reflectance and transmittance values outside these ranges ISO 52022-3 applies.

For cases not covered by the method given in this document more exact calculations based on the optical properties (in general the spectral data) of glass and solar protection device can be carried out in accordance with ISO 52022-3.

NOTE [Table 1](#) in the Introduction shows the relative position of this document within the set of EPB standards in the context of the modular structure as set out in ISO 52000-1.

2 Normative references

The following documents are referred to in text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 7345, *Thermal insulation — Physical quantities and definitions*

ISO 9050, *Glass in building — Determination of light transmittance, solar direct transmittance, total solar energy transmittance, ultraviolet transmittance and related glazing factors*

ISO 10291, *Glass in building — Determination of steady-state U values (thermal transmittance) of multiple glazing — Guarded hot plate method*

ISO 10292, *Glass in building — Calculation of steady-state U values (thermal transmittance) of multiple glazing*

ISO 10293, *Glass in building — Determination of steady-state U values (thermal transmittance) of multiple glazing — Heat flow meter method*

ISO 52000-1:2017, *Energy performance of buildings — Overarching EPB assessment — Part 1: General framework and procedures*

ISO 52022-3:2017, *Energy performance of buildings — Building and Building Elements — Thermal, solar and daylight properties of building components and elements — Part 3: Detailed calculation method of the solar and daylight Characteristics for solar protection devices combined with glazing*

EN 410, *Glass in building — Determination of luminous and solar characteristics of glazing*

EN 673, *Glass in building — Determination of thermal transmittance (U value) — Calculation method*

EN 674, *Glass in building — Determination of thermal transmittance (U value) — Guarded hot plate method*

EN 675, *Glass in building — Determination of thermal transmittance (U value) — Heat flow meter method*

EN 14500, *Blinds and shutters — Thermal and visual comfort — Test and calculation methods*

NOTE Default references to EPB standards other than ISO 52000-1 are identified by the EPB module code number and given in [Annex A](#) (normative template in [Table A.1](#)) and [Annex B](#) (informative default choice in [Table B.1](#)).

EXAMPLE EPB module code number: M5-5, or M5-5.1 (if module M5-5 is subdivided), or M5-5/1 (if reference to a specific clause of the standard covering M5-5).

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 410, EN 14500, ISO 7345, ISO 52000-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

EPB standard

standard that complies with the requirements given in ISO 52000-1, CEN/TS 16628^[3] and CEN/TS 16629^[4]

Note 1 to entry: These three basic EPB documents were developed under a mandate given to CEN by the European Commission and the European Free Trade Association (Mandate M/480), and support essential requirements of EU Directive 2010/31/EU on the energy performance of buildings (EPBD). Several EPB standards and related documents are developed or revised under the same mandate.

[SOURCE: ISO 52000-1:2017, definition 3.5.14]

4 Symbols and subscripts

4.1 Symbols

For the purposes of this document, the symbols given in ISO 52000-1 and the following apply.

Symbol	Name of quantity	Unit
g	total solar energy transmittance	—
U	thermal transmittance	W/(m ² ·K)
G	thermal conductance	W/(m ² ·K)
α	absorptance	—
ρ	reflectance	—
τ	transmittance	—

4.2 Subscripts

For the purposes of this document, the subscripts given in ISO 52000-1 and the following apply.

B	solar protection device
g	glazing
e	solar energy
v	visible
tot	total
ext	external
int	internal
integr	integrated

5 Description of the methods

5.1 Outputs

The possible outputs of this document are the following:

- the total solar energy transmittance for a glazing in combination with an external or internal or integrated solar protection device, g_{tot} ;
- the total solar direct transmittance for a glazing in combination with an external or internal solar protection device, $\tau_{e,tot}$;
- the total light transmittance for a glazing in combination with an external or internal solar protection device, $\tau_{v,tot}$.

5.2 General description

In general, the total solar energy transmittance, the total solar direct transmittance and the total light transmittance is calculated as a function of the “optical” properties of the solar protection device and the glazing, the thermal transmittance of the glazing and the position of the solar protection device.

Throughout this document, where indicated in the text, [Table C.1](#) shall be used to identify alternative regional references in line with ISO Global Relevance Policy.

6 Calculation method

6.1 Output data

The outputs of this document are the total solar energy transmittance, the total solar direct transmittance and the total light transmittance for a glazing in combination with a solar protection device (see [Table 2](#)).

Table 2 — Output data

Description	Symbol	Unit	Destination module	Validity interval	Varying
Total solar energy transmittance	g_{tot}	—	M2-2, M2-3, M2-4	0... 1	No
Total solar direct transmittance	$\tau_{e,\text{tot}}$	—	M2-2, M2-3, M2-4	0... 1	No
Total light transmittance	$\tau_{v,\text{tot}}$	—	M2-2, M2-3, M2-4	0... 1	No

6.2 Calculation time intervals

The input, the method and the output data are for steady-state conditions and assumed to be independent of actual conditions, such as indoor and outdoor temperature or effect of wind or solar radiation and therefore there are no time intervals.

6.3 Input data

6.3.1 Glazing

Glazing is characterized by the quantities according to [Table 3](#).

Table 3 — Identifiers for characteristics of the glazing

Name	Symbol	Unit	Range	Origin	Varying
Thermal transmittance	U_g	W/(m ² ·K)	0... 6	ISO 10291 for measured value (GHP), ISO 10292 for calculated value or ISO 10293 for measured value (HFM) (or see Subject 1, 2 or 3 in Table C.1)	No
Total solar energy transmittance	g	—	0,15... 0,85	ISO 9050 (or see Subject 4 in Table C.1)	No
Light transmittance	τ_v	—	0... 1	ISO 9050 (or see Subject 4 in Table C.1)	No

Table 3 (continued)

Name	Symbol	Unit	Range	Origin	Varying
Light reflectance of the side of the glazing facing the incident radiation	ρ_v	—	0... 1	ISO 9050 (or see Subject 4 in Table C.1)	No
Light reflectance of the side of the glazing facing away from incident radiation	ρ'_v	—	0... 1	ISO 9050 (or see Subject 4 in Table C.1)	No
Solar direct transmittance	τ_e	—	0..1	ISO 9050 (or see Subject 4 in Table C.1)	No
Solar direct reflectance of the side of the glazing facing the incident radiation	ρ_e	—	0..1	ISO 9050 (or see Subject 4 in Table C.1)	No
Solar direct reflectance of the side of the glazing facing away from the incident radiation	ρ'_e	—	0..1	ISO 9050 (or see Subject 4 in Table C.1)	No

U_g shall be determined according to ISO 10291 for measured value (GHP), ISO 10292 for calculated value or ISO 10293 for measured value (HFM) (or see Subject 1, 2 or 3 in Table C.1).

g , τ_e , ρ_e , ρ'_e , τ_v , ρ_v and ρ'_v shall be determined according to ISO 9050 (or see Subject 4 in Table C.1).

Instead, if no detailed data are available, the default data for glazing given in ISO/TR 52022-2 may be used.

6.3.2 Solar protection devices

Solar protection devices are characterized by the values of transmittance and reflectance for solar radiation and the values of light transmittance and reflectance according to Table 4.

Table 4 — Identifiers for characteristics of the solar protection device

Name	Symbol	Unit	Range	Origin	Varying
Solar transmittance	$\tau_{e,B}$	—	0... 0,5	EN 14500	No
Reflectance of the side of the solar protection device facing the incident radiation	$\rho_{e,B}$	—	0,1... 0,8	EN 14500	No
Solar reflectance of the side of the solar protection device facing away from the incident radiation	$\rho'_{e,B}$	—	0,1... 0,8	EN 14500	No
Light transmittance	$\tau_{v,B}$	—	0... 1	EN 14500	No
Light reflectance of the side of the solar protection device facing the incident radiation	$\rho_{v,B}$	—	0... 1	EN 14500	No
Light reflectance of the side of the solar protection device facing away from the incident radiation	$\rho'_{v,B}$	—	0... 1	EN 14500	No

These values shall be determined according to EN 14500. In EN 14500, $\tau_{e,B}$ and $\rho_{e,B}$ are designated by $\tau_{e,n-h}$ and $\rho_{e,n-h}$, respectively (normal — hemispheric values).

Instead, if no data are available, the default data for solar protection devices given in ISO/TR 52022-2 may be used.

For venetian blinds open to 45°, the following corrected values may be used, assuming there is no direct solar penetration and the reflection of the slats is diffused only:

$$\tau_{e,B}^{\text{corr}} = 0,65 \cdot \tau_{e,B} + 0,15 \cdot \rho_{e,B} \quad (1)$$

$$\rho_{e,B}^{\text{corr}} = \rho_{e,B} \cdot (0,75 + 0,70 \cdot \tau_{e,B}) \quad (2)$$

[Formulae \(1\)](#) and [\(2\)](#) do not take into account diffuse irradiation. The properties of louvre or venetian blinds may also be calculated in accordance with ISO 52022-3:2017, Annex D.

The limitations given in [Clause 1](#) shall be considered.

6.4 Calculation procedure

6.4.1 Applicable time interval

The calculations described in this document are steady-state and do not have time intervals.

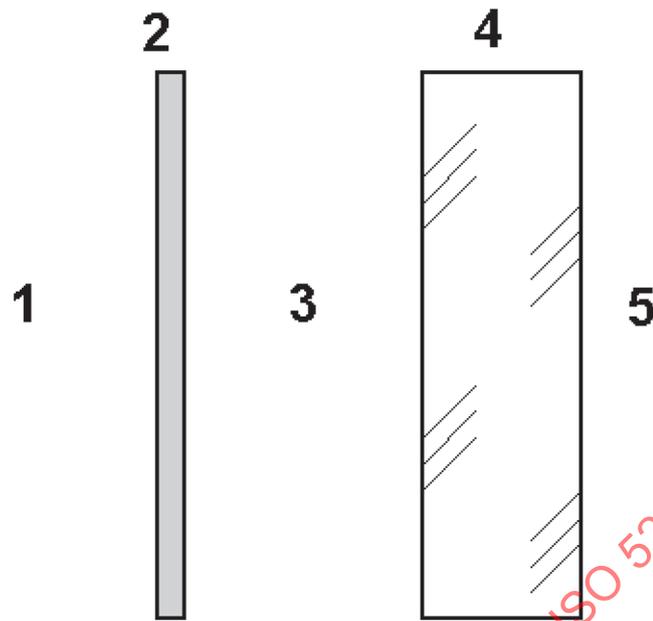
6.4.2 Total solar energy transmittance

6.4.2.1 General

The formulae are based on a simple physical model and the values of the notional parameters, G , are mathematically fitted to a more precise reference calculation, following the principles of ISO 52022-3. The ventilation assumptions are such that the results are conservative for cooling load estimations.

6.4.2.2 External solar protection devices

[Figure 1](#) shows schematically the installation of external solar protection devices.



Key

- 1 exterior
- 2 solar protection device
- 3 unventilated air space
- 4 glazing
- 5 interior

Figure 1 — Characteristic position of external solar protection device

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The total solar energy transmittance for glazing and an external solar protection device is given by [Formula \(3\)](#):

$$g_{\text{tot}} = \tau_{e,B} \cdot g + \alpha_{e,B} \frac{G_{\text{ext}}}{G_2} + \tau_{e,B} (1 - g) \frac{G_{\text{ext}}}{G_1} \quad (3)$$

where

$$\alpha_{e,B} = 1 - \tau_{e,B} - \rho_{e,B};$$

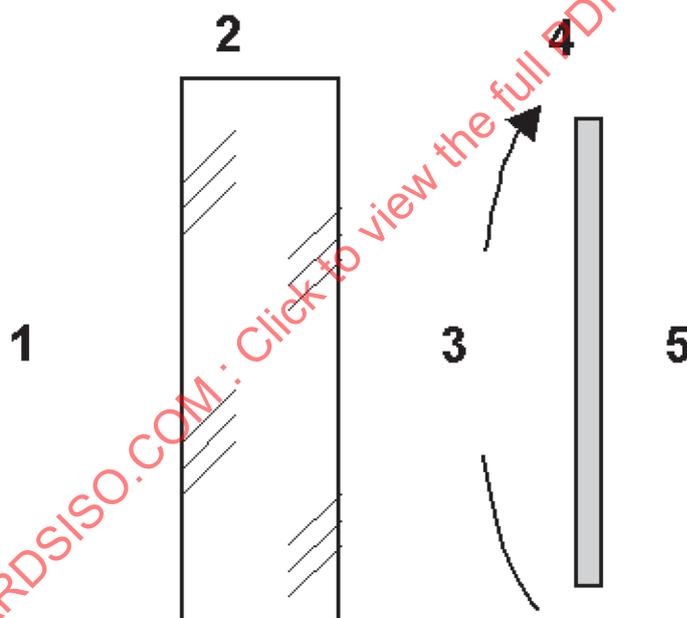
$$G_1 = 5 \text{ W}/(\text{m}^2 \cdot \text{K});$$

$$G_2 = 10 \text{ W}/(\text{m}^2 \cdot \text{K});$$

$$G_{\text{ext}} = \left(\frac{1}{U_g} + \frac{1}{G_1} + \frac{1}{G_2} \right)^{-1}$$

6.4.2.3 Internal solar protection devices

[Figure 2](#) shows schematically the installation of internal solar protection devices.



Key

- 1 exterior
- 2 glazing
- 3 air space, ventilated to the interior
- 4 solar protection device
- 5 interior

Figure 2 — Characteristic position of internal solar protection device

The total solar energy transmittance for a glazing and an internal solar protection device is given by [Formula \(4\)](#):

$$g_{\text{tot}} = g(1 - g \cdot \rho_{\text{e,B}} - \alpha_{\text{e,B}} \frac{G_{\text{int}}}{G_3}) \quad (4)$$

where

$$\alpha_{\text{e,B}} = 1 - \tau_{\text{e,B}} - \rho_{\text{e,B}};$$

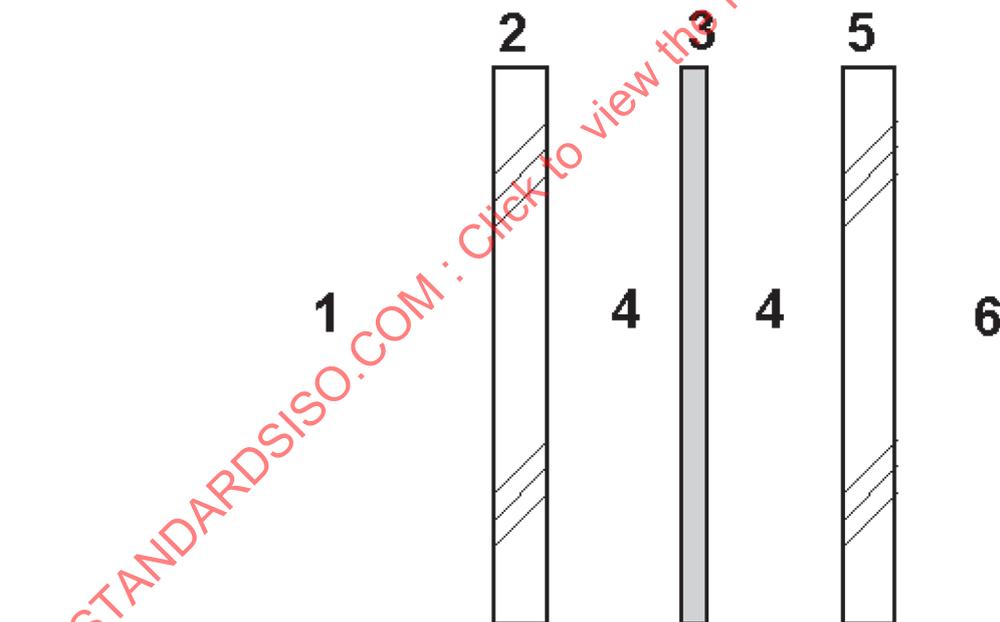
$$G_3 = 30 \text{ W}/(\text{m}^2 \cdot \text{K});$$

$$G_{\text{int}} = \left(\frac{1}{U_g} + \frac{1}{G_3} \right)^{-1}$$

NOTE For internal blinds in combination with solar protection glass, [Formula \(4\)](#) leads to very conservative values. Therefore, it is recommended to calculate g_{tot} in accordance with ISO 52022-3.

6.4.2.4 Integrated solar protection devices

[Figure 3](#) shows schematically the installation of solar protection devices between two single-glass panes. The calculation method is valid for a system where the outer pane is uncoated and the inner pane is either uncoated or with low emissivity coating.



Key

- 1 exterior
- 2 single glazing, uncoated
- 3 solar protection device
- 4 unventilated air space
- 5 single glazing, coated or uncoated
- 6 interior

Figure 3 — Characteristic position of integrated solar protection device

The total solar energy transmittance for the position of the solar protection device between the two glass panes is given by [Formula \(5\)](#):

$$g_{\text{tot}} = g \cdot \tau_{e,B} + g \left[\alpha_{e,B} + (1-g)\rho_{e,B} \right] \frac{G_{\text{integr}}}{G_4} \quad (5)$$

where

$$\alpha_{e,B} = 1 - \tau_{e,B} - \rho_{e,B};$$

$$G_4 = 3 \text{ W}/(\text{m}^2 \cdot \text{K});$$

$$G_{\text{integr}} = \left(\frac{1}{U_g} + \frac{1}{G_4} \right)^{-1}$$

6.4.3 Total light transmittance

[Formulae \(6\)](#) and [\(7\)](#) shall be used for internal or external solar protection devices to determine the total light transmittance:

$$\tau_{v,\text{tot}} = \frac{\tau_v \cdot \tau_{v,B}}{1 - \rho_v \cdot \rho'_{v,B}} \quad \text{or external solar protection devices} \quad (6)$$

$$\tau_{v,\text{tot}} = \frac{\tau_v \cdot \tau_{v,B}}{1 - \rho'_v \cdot \rho_{v,B}} \quad \text{or internal solar protection devices} \quad (7)$$

where

τ_v is the light transmittance of the glazing;

ρ_v is the light reflectance of the side of the glazing facing the incident radiation;

ρ'_v is the light reflectance of the side of the glazing facing away from incident radiation;

$\tau_{v,B}$ is the light transmittance of the solar protection device;

$\rho_{v,B}$ is the light reflectance of the side of the solar protection device facing the incident radiation;

$\rho'_{v,B}$ is the light reflectance of the side of the solar protection device facing away from the incident radiation.

For integrated solar protection devices, ISO 52022-3 shall be used.

[Formulae \(6\)](#) and [\(7\)](#) do not take into account either the angular dependence of the transmittance and the reflectance, or the differences of spectral distribution. It shall not be used for calculation of daylight distribution in rooms.

6.4.4 Total solar direct transmittance

[Formulae \(8\)](#) and [\(9\)](#) shall be used for internal or external solar protection devices to determine the total solar direct transmittance of the whole system:

$$\tau_{e,\text{tot}} = \frac{\tau_e \cdot \tau_{e,B}}{1 - \rho_e \cdot \rho'_{e,B}} \quad \text{for external solar protection devices} \quad (8)$$

$$\tau_{e,\text{tot}} = \frac{\tau_e \cdot \tau_{e,B}}{1 - \rho'_e \cdot \rho_{e,B}} \quad \text{for internal solar protection devices} \quad (9)$$

where

τ_e is the solar direct transmittance of the glazing;

ρ_e is the solar direct reflectance of the side of the glazing facing the incident radiation;

ρ'_e is the solar direct reflectance of the side of the glazing facing away from the incident radiation;

$\tau_{e,B}$ is the solar transmittance of the solar protection device;

$\rho_{e,B}$ is the solar reflectance of the side of the solar protection device facing the incident radiation;

$\rho'_{e,B}$ is the solar reflectance of the side of the solar protection device facing away from the incident radiation.

For integrated solar protection devices, ISO 52022-3 shall be used.

7 Report

7.1 Contents of report

The calculation report shall include the following information:

- reference to this document (ISO 52022-1);
- notation if the EN standards in [Table C.1](#) have been used;
- identification of the organization making the calculation;
- date of calculation;
- items listed in [7.2](#) and [7.3](#).

7.2 Drawing

A schematic drawing showing the position of the solar protection device.

7.3 Values used in the calculation

The values and the origin of these values used for the calculation shall be stated.

7.4 Presentation of results

The results calculated according to this document shall be given to two significant figures.

Annex A (normative)

Input and method selection data sheet — Template

A.1 General

The template in Annex A of this document shall be used to specify the choices between methods, the required input data and references to other documents.

NOTE 1 Following this template is not enough to guarantee consistency of data.

NOTE 2 Informative default choices are provided in [Annex B](#). Alternative values and choices can be imposed by national/regional regulations. If the default values and choices of [Annex B](#) are not adopted because of the national/regional regulations, policies or national traditions, it is expected that:

- national or regional authorities prepare data sheets containing the national or regional values and choices, in line with the template in Annex A; or
- by default, the national standards body will add or include a national annex (Annex NA) to this document, in line with the template in Annex A, giving national or regional values and choices in accordance with their legal documents.

NOTE 3 The template in Annex A is applicable to different applications (e.g., the design of a new building, certification of a new building, renovation of an existing building and certification of an existing building) and for different types of buildings (e.g., small or simple buildings and large or complex buildings). A distinction in values and choices for different applications or building types could be made:

- by adding columns or rows (one for each application), if the template allows;
- by including more than one version of a table (one for each application), numbered consecutively as a, b, c, ... For example: Table NA.3a, Table NA.3b;
- by developing different national/regional data sheets for the same standard. In case of a national annex to the standard these will be consecutively numbered (Annex NA, Annex NB, Annex NC, ...).

NOTE 4 In the section "Introduction" of a national/regional data sheet information can be added, for example about the applicable national/regional regulations.

NOTE 5 For certain input values to be acquired by the user, a data sheet following the template of Annex A, could contain a reference to national procedures for assessing the needed input data. For instance, reference to a national assessment protocol comprising decision trees, tables and pre-calculations.

The shaded fields in the tables are part of the template and consequently not open for input.

A.2 References

The references, identified by the EPB module code number, are given in [Table A.1](#) (template).